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DOGS: ANCIENT AND MODERN.*

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THE great French zoologist Cuvier has characterized the Dog as the completest, the most singular, and the most useful conquest ever made by man. It was probably the first animal selected by man to assist him in his pursuits as a hunter, but it is by no means clear that it was the first of the beasts of the field to come under his subjection. It is more likely that sheep and cattle were the earliest subjects of human conquest; for with the skins of these man formed for himself a defence and clothing, and the milk which they yielded, as well as the meat which they supplied, furnished him with nutriment. But as these would offer no companionable qualities, and could render him no assistance in capturing wilder animals, he would naturally be led to look around him for such a companion and assistant as the dog would be likely to prove.

The marked prejudice which existed against the dog in certain parts of the East doubtless operated for some time to protract its perfect domestication; nor was it likely that until its valuable qualities had gradually but irresistibly conquered this prejudice, it would be enlisted into the confidence and esteem of man, and its services be duly appreciated. But when it was found that in this animal were united exquisite powers of scent and vision, great strength, speed, and courage, and an instinctive ardour in

* An abstract of one of the "Davis Lectures," delivered at the Zoological Gardens, July 3rd, 1884.

the pursuit of all wild animals, its future association with man must have become fixed by an indissoluble tie.

It is not unlikely that the unity of purpose displayed by wild dogs in their gregarious state, when spontaneously pursuing game, may have first impressed man with the idea of enlisting them, if possible, into his service. How would this be accomplished in the first instance? Probably the first dogs were taken in pitfalls, traps, and snares formed for the capture of deer and other wild animals on which the hunter had to live. Such as might prove with young would be preserved, in which case their progeny would gradually become domesticated, and as they yielded to future discipline would prove useful, not only in the chase, but in giving notice of the approach of enemies of their owners, or of their owners' flocks.

In the wilds of North-east Australia at the present day, as I am informed by a recent traveller there, Dr. Lumholz, the natives, who employ the Dingo in their hunting, never capture the adult animal, which will not breed in confinement (so they allege), but search for a litter of puppies, which they find in crevices in the rocks, or in hollows at the base of tree-trunks, and bring them up by hand. They gradually become familiar and obedient, and, since they hunt by scent, soon become useful in the chase. Dr. Lumholz, however, remarked that they do not long remain with their masters, for as soon as the inclination for pairing comes on (which with wild dogs happens only once a year) they betake themselves to the wilds, never to return. Thus their owners are compelled to seek for fresh puppies to reclaim and educate, and keep as long as they can.

It is evident, then, that the dog, which we now know in such a great variety of forms, has not always been domesticated, but has, at a very remote period, been reclaimed by man's agency from a feral state. The means employed to capture it I have just indicated. Let us now consider the question of origin.

Whence have arisen the numerous and remarkably different breeds which are now scattered all over the world? Can it be possible that they have originated from one wild prototype, whose descendants by transportation to different climates, and forced existence under altered conditions of life, have in the course of countless generations become so modified as to assume the appearance which they now present? Or are we to believe that more than one wild ancestor has contributed to the formation of

the various existing breeds, the variations presented by the wild types being still further increased by the hybridization of their progeny? Their variability, their universal commixture, the perfect fertility of the produce of the most widely separated varieties, are arguments in favour of their being only one species. On the other hand, the remarkable difference between some of the varieties is the argument chiefly relied on for the plurality of stocks. As there is sufficient evidence to show that the dog existed in a domesticated state in pre-historic times,* neither history nor tradition enables us to solve with certainty the question of origin—a question upon which so much difference of opinion prevails that it is doubtful whether it will ever be satisfactorily settled.

I propose therefore to consider, *first*, what was the appearance presented by some of the earliest known forms of the domestic dog amongst different nations; *secondly*, what are the existing wild species of dog from which it is both possible and probable they descended; and *thirdly*, how far a knowledge of these existing wild types, and their geographical distribution, will enable us to classify the various modern domestic breeds, and account for their origin.

In historic times the earliest records of the dog are to be found in figures on Egyptian monuments more than 3000 years B. C., and these show that even at that early period several different breeds were known, such as the hound, mastiff, and a small long-bodied, short-legged dog not unlike the modern Turnspit.

From a critical and learned paper by Dr. Birch, "On the Tablet of Antefaa II.," published in the 'Transactions of the Society of British Archæology' (vol. iv. p. 172, 1876), it appears that the oldest dog seen on the monuments, appearing at the time of Cheops of the 4th dynasty, B. C. 3700, and called by some "the Khufu dog," was an animal of moderate size, having a pointed nose, upright ears, and curled tail, and resembling what we should now-a-days call a Wolf-dog.†

* Remains of the dog of the Neolithic age have been discovered in the kitchen-middens or refuse-heaps of Denmark and Switzerland, as well as in the Neolithic caves of N. Wales and the Neolithic tumuli of Yorkshire.

† Great difference of opinion prevails amongst Egyptologists with regard to dates. The date 3733 B. C. is that assigned to Cheops, or Khufu, of the 4th dynasty, by Brugsch Bey in his 'History of Egypt under the Pharaohs,' vol. ii. p. 312 (1879).

I may here remark, by way of parenthesis, that in all truly wild dogs the ears are erect, the tail pendent or drooping; while pendent ears and a recurved tail invariably indicate domesticity. It is not difficult to understand how this change came about. A wild dog for its own safety is ever on the alert, and depends much on its keen sense of hearing. The familiar expression, "pricking up the ears" suggests how much the muscles of the ears must be exercised and strengthened by daily and hourly necessitated use of them. In a domestic condition, a dog becoming attached to an owner and his friends, and growing accustomed to the approach of strangers without molestation,

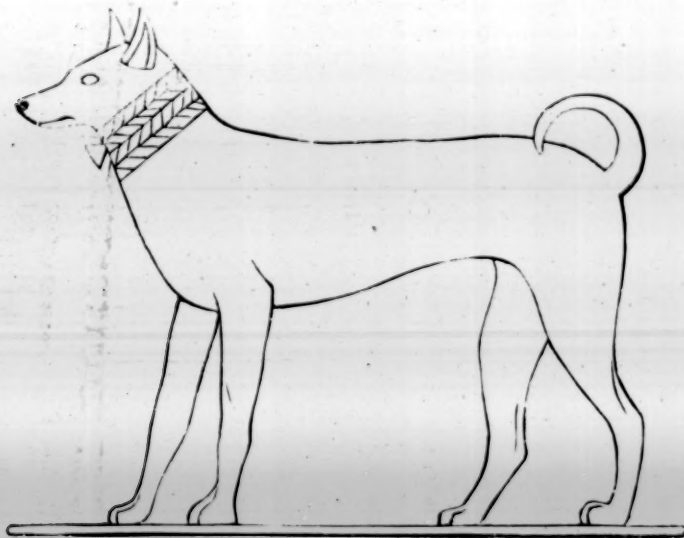


FIG. 1.—EGYPTIAN DOG. B. C. 3700. (Birch, *l. c.*).

would gradually lose his constant apprehension of danger, would consequently cease to prick up his ears, and the muscles of these gradually becoming weakened would fall into disuse; until, at length, from being semi-erect they would become completely pendent, and this peculiarity would become more and more marked in succeeding generations.*

Then, with regard to the tail, we know what an index of temper it is in the dog. When an animal puts his tail between his legs, or wags it violently from side to side, we know as well

* This want of power to erect the ears is especially noticeable in Spaniels and certain long-eared hounds like the Bloodhound.

as possible the different emotions by which he is actuated. We can easily conceive that the altered conditions of life in which the domestic dog would exist, as compared with the habits of a wild dog, would lead to much greater exercise of the tail, which in consequence would become strengthened, gradually recurved, and eventually would be carried permanently in the position in which it had come to be so frequently placed.

Now it will be noticed that the earliest known dog within historic times, to which I have referred (Fig. 1), and which is sometimes depicted as a house-dog attached to the chair of its

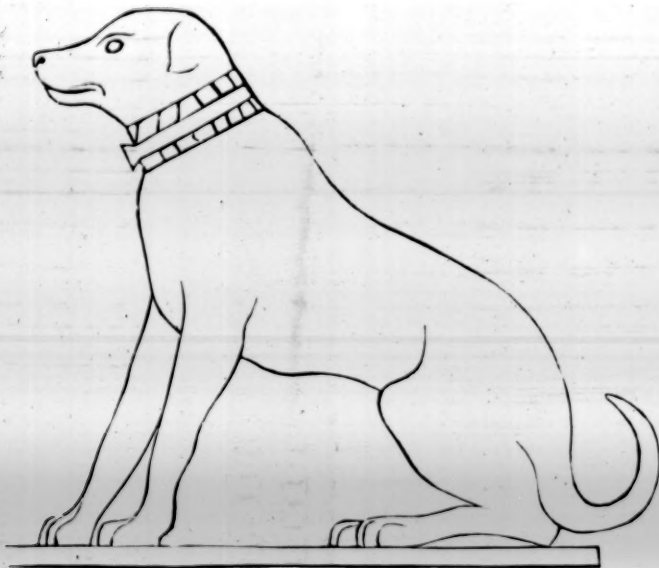


FIG. 2.—EGYPTIAN HOUND. B. C. 3700. (Birch, *l.c.*).

master, had upright ears, like a wild dog, but a recurved tail, like a domestic one; a circumstance which seems to indicate not only a relationship to some wild prototype, but also domestication for some considerable time before the date of the monument on which it is depicted.

On the same "Tablet of Antefaa II." deciphered by Dr. Birch, three other forms of dog are sculptured—or at least two, for two out of the four figures appear to resemble each other very closely. One is a hound with pendent ears and recurved tail (Fig. 2); another is a longer-headed, sharper-nosed dog, like a Greyhound,

having also a longer and more tapering tail* (Fig. 3), while the fourth resembles the hound, but with a somewhat shorter muzzle and shorter ears, and is considered by Dr. Birch to be a kind of Mastiff. This type is seldom represented on the monuments, and may have been introduced into Egypt perhaps from India. It is somewhat similar to a large dog depicted on the marble slabs of Assyria about 660 B. c. (Fig. 4).

On other monuments and tablets, described by Sir Gardner Wilkinson, in his 'Manners and Customs of the Ancient Egyptians,' besides the breeds just mentioned, we find another and smaller dog with erect ears, a head like a Terrier, a long body, short legs, and slender tapering tail (Fig. 5). Thus, even at this

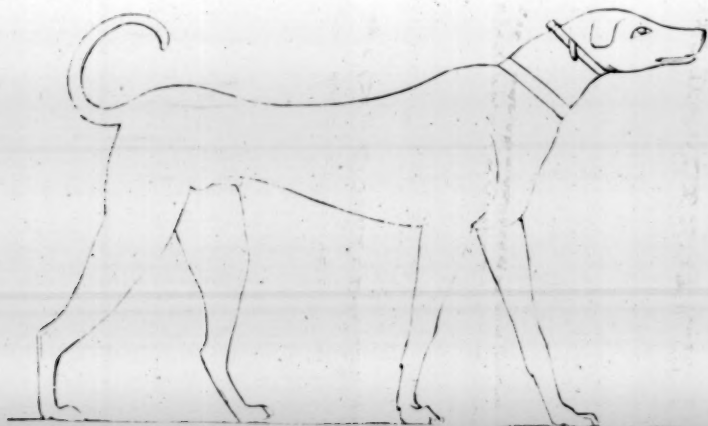


FIG. 3.—EGYPTIAN GREYHOUND. B. C. 3700. (Birch, *l.c.*).

remote period, several very distinct forms were known to the ancient Egyptians, and the fact of their being domesticated is still further indicated by their being represented with collars.

By the ancient Egyptians the dog was worshipped under the title *Anubis*, as the genius of the Nile—the appearance of Sirius, the dog-star, corresponding with the time of the annual rise of that river.

Among the ancient Assyrians we find sculptured representations of two kinds of dog: a large dog like a Mastiff, used in the chase of the lion, the wild bull, and wild ass (Fig. 4), and a sort

* This perhaps was the breed specially used for the capture of the white antelope, referred to and figured by the Rev. W. Houghton, in his 'Natural History of the Ancients,' p. 26.

of Greyhound employed for coursing the Gazelle. But although only these two kinds have been found upon the monuments, there is reason to believe that some other breeds were known to the Assyrians.

The Rev. W. Houghton, who has paid considerable attention to the subject, and has published a very learned and most interesting paper on "the Mammalia of the Assyrian Sculptures,"* commenting upon the bilingual tablets which have been discovered, whereon the Assyrian names of animals and plants are represented side by side with their Accadian equivalents, states that he has found on one of these names which signify "the chained-up mouth-opening dog" (that is, a watch-dog), and

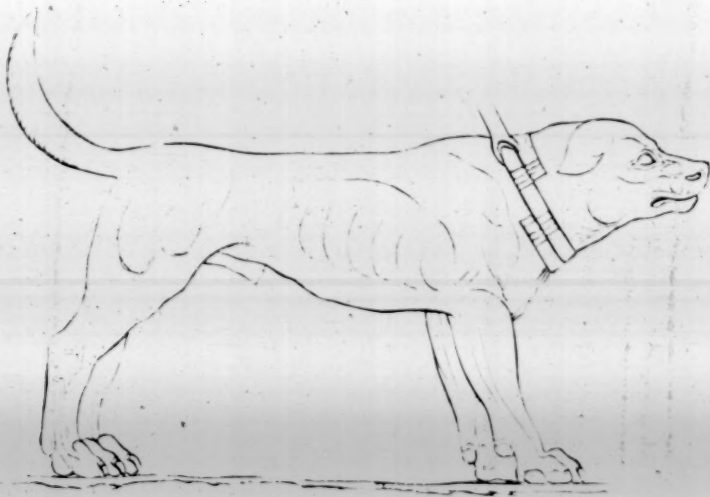


FIG. 4.—ASSYRIAN MASTIFF. B. C. 660. (Houghton, *l.c.*).

the "protecting dog," probably a sheep-dog. In addition to these he has also deciphered words implying "the water-dog," and "the dog of the earth," perhaps some kind of Terrier, or at all events an animal dwelling, as many wild dogs do, in a burrow. To the Assyrians, then, as to the Egyptians, several different breeds appear to have been known.

The earliest record of the dog in Sacred History is in connection with the sojourn of the Israelites in Egypt, and it has been suggested that the religious homage paid to it by their oppressors may probably explain why the Jews were taught to

* Trans. Soc. Bibl. Archaeol., vol. v. (1877).

regard it as unclean. Canon Tristram, however, assigns another reason, and considers that the dog came to be regarded with aversion and disgust from its scavenger-like habits, and the filthy nature of its food in Oriental towns.*

Every Oriental city and village abounds with troops of hungry and half-savage dogs, which own allegiance rather to the place than to persons, and which wander about the streets and fields howling dismally at night, and devouring even the dead bodies of men when they can reach them.

"The common dog of Eastern towns," says Canon Tristram (*op. cit.* p. 80), "is the same breed as that of the Shepherd-dog, often in India called the Pariah-dog, and probably the nearest in appearance to the wild original, not unlike the Jackal, with short sharp-pointed ears, sharp snout, generally a tawny coat, and tail

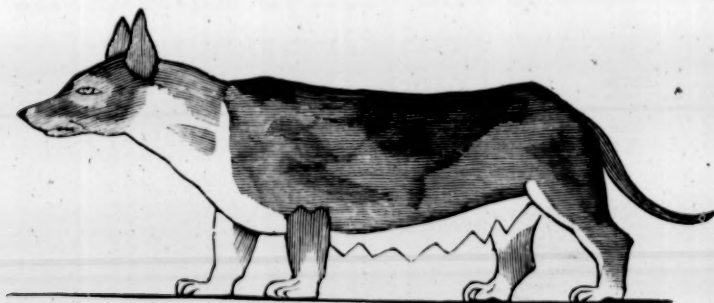


FIG. 5.—ANCIENT EGYPTIAN TERRIER. (Wilkinson, *l. c.*).

scarcely bushy. It much resembles in form and size the Shepherd's dog or Colley of the North of England. * * * * * No other breed of dog is known in Palestine, save such as are introduced and kept by Europeans, excepting the Persian Greyhound, a very different animal from the town dog, and highly prized by the desert Sheikhs, who use it for the chase of the Gazelle. It is of the shape of our Greyhound, but larger and stronger, with long silky hair on the ears and belly, and a long pendent fringe of the same fine hair on the tail. Inferior in speed, it far surpasses our Greyhound in endurance, and can frequently run down the Gazelle."

The only instance noticed in Scripture of the dog being treated "as a companion" occurs in the Book of Tobit, where

* 'Natural History of the Bible,' p. 79 (6th ed.).

we are told that young Tobias with a companion was sent by his father into Media to recover some money which he had lent to a friend, and that "they both went forth, and the young man's dog with them" (v. 16; xi. 4).

The Persians, like the Assyrians, had a large breed of dogs like our Mastiff, which they used in war as well as for the chase (Fig. 4). In time of war they were furnished with spiked collars, and savagely attacked the enemies of their owners when urged so to do.* In the chase they were employed for hunting the lion, the wild bull, and the wild ass. Doubtless they were allied to the great Indian dog known to Alexander, and mentioned by Herodotus, Aristotle, Xenophon, and Strabo amongst the Greeks, and by Pliny and Solinus amongst the Latins. Models in terra-cotta of some of these large dogs as used, about 660 B. C., by Assurbanipal, the son of Esarhaddon, may be seen in the British Museum.

The Greeks held their dogs in great esteem, and cultivated two kinds, the large Mastiff-like dog to which I have referred, and a fleeter hound which ran by scent. Xenophon, in his 'Treatise on Hunting,' particularly mentions two kinds of dogs (both Spartan), one of which he calls Castorian, the other Alopecian, or the fox-breed. He explains that the Castorian dogs were so called because Castor, who delighted in hunting, had most regard for them, and that the others were hybrids between dog and fox, adding that "through length of time the natures of the two animals had become completely amalgamated."†

Whatever may be said now-a-days as to the possibility of a cross between dog and fox, it is worth notice that such a cross was believed in by an authority on dogs who wrote about 400 B. C., and it also indicates the antiquity of a breed which even at that day was believed to be very old.

Coursing, as we now practise it, was unknown in Xenophon's day, although the hare was constantly an object of pursuit; but it was hunted by scent, by the kind of hound to which I have referred, and not by the fleeter Greyhound running by sight

* Pliny tells us how the people of Colophon and Castabala kept troops of dogs for war purposes, which used to fight in the first rank and never retreated (Nat. Hist. viii. 61).

† Xenophon, 'Cyngeticus,' iii. 1.

alone. Five hundred years later, however, as we learn from Arrian, coursing with Greyhounds had come in vogue, and this author has left us a very remarkable treatise on coursing, which presents a vivid picture not only of the way in which this branch of hunting was anciently pursued by the Greeks, but also of the peculiarities which were considered by them to be "good points" in a dog, and their methods of feeding, training, and general management.

Among the Romans dogs were divided into three classes:—

- (1) *Canes villatici*, House-dogs;
- (2) „ *pastorales*, Shepherd-dogs;
- (3) „ *venatici*, Sporting-dogs;

and in the last division they recognised three distinct breeds, which they termed—

- (a) *pugnaces*, pugnacious dogs;
- (b) *nare sagaces*, dogs running by scent;
- (c) *pedibus celeres*, swift dogs running by sight.

This threefold division of the *Canes venatici* (or dogs used for the chase) into *pugnaces*, *sagaces*, and *celer*es may be traced more or less clearly in the writings of many classic authors, as Gratius, Seneca, Artemidorus, Oppian, Claudian, and Julian Firmicus; although in Xenophon and the earlier Greek writers we only find mention of the two first-named, for the Greyhound of that period was unknown to them.

With regard to the original geographical distribution of these three varieties, the prevalent opinion of continental writers who have devoted their attention to the *Cynegetica* of Greece and Rome is that the *pugnaces* came from Asia, the *sagaces* from Greece, and the *celer*es from Gaul.

The Celtic or Gallic hound does not appear to have been introduced generally into the more southern parts of Europe till after the dissolution of the Commonwealth of Rome. It is first mentioned by Ovid, and its style of hunting the hare is so well described by him that it must have been derived from actual experience in the field rather than hearsay; which circumstance alone seems to have given it admission into the *Cynegeticon* of Gratius, Ovid's contemporary.

The dogs used by the early Britons for the protection of their flocks and for the chase appear to have been of great importance with them. Three varieties were cultivated with considerable

care, viz., the Mastiff, the Boar-hound, and the great rough Greyhound, generally known as the Wolf-hound. It is remarkable how well these three breeds correspond with the *pugnaces*, *sagaces*, and *celerēs*, to which I have just referred. They were common in all European countries, particularly the northern, but varied somewhat in size and substance, according to locality and the different conditions of life under which they were obliged to exist. It is a matter of much regret that we are so little acquainted with the real form and dimensions of these notable and ancient dogs.

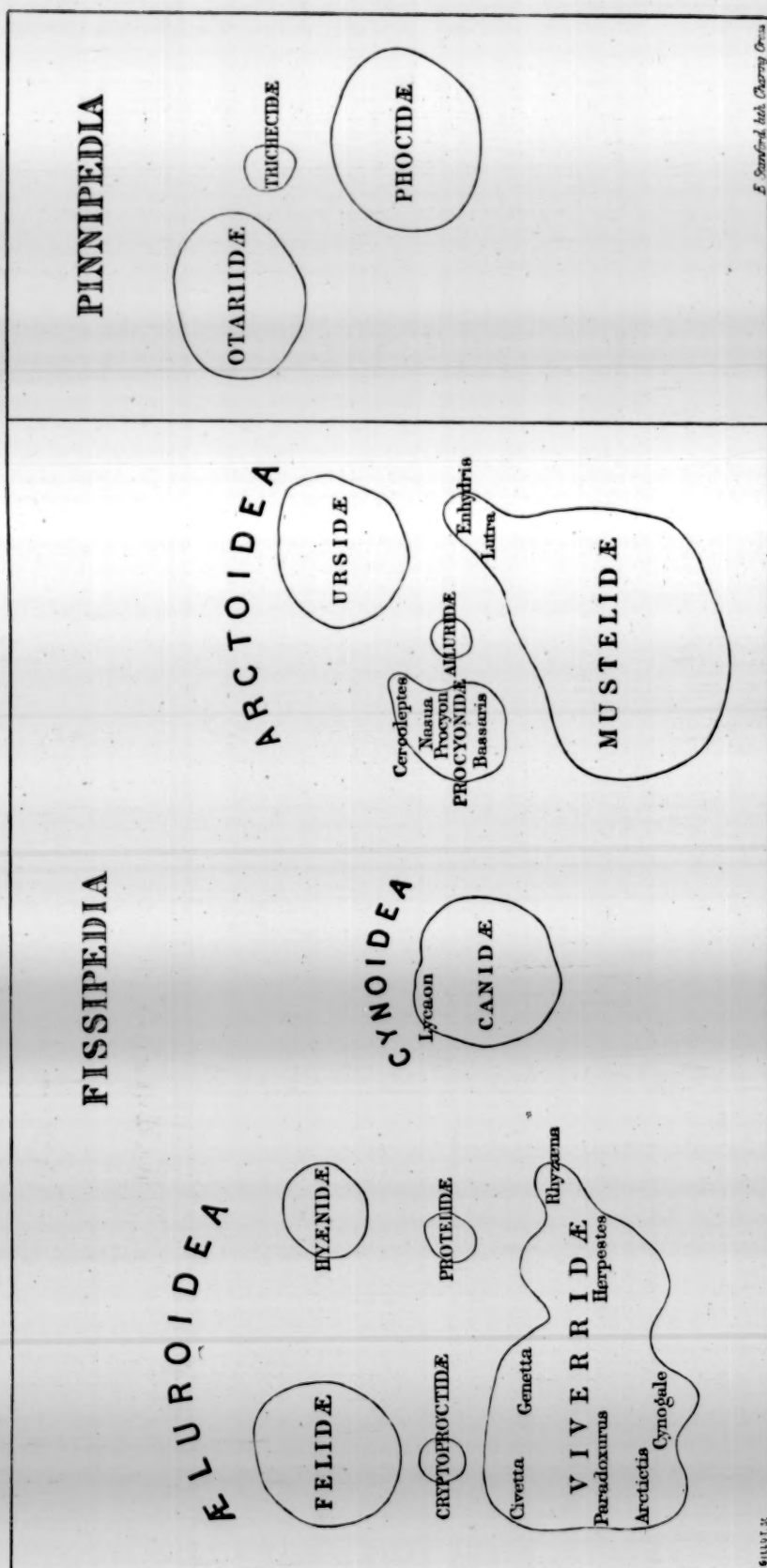
These early breeds are all remarkable for having erect or semi-erect ears, like all wild dogs and wolves. The pendulous ear was not seen till near the decline of the Roman Empire.

Having now glanced briefly at the different kinds of dogs which were known to the great nations of old, let us consider what are the existing species of wild dogs (including Wolves, Foxes, Jackals, and a few other aberrant forms), from which it is possible, and indeed probable, that our domestic races have descended. To take a survey of these satisfactorily it will be desirable, in the first place, to note the position which the great family *Canidæ* occupies in the order *Carnivora* in relation to other Carnivores. It will be perceived, on looking at the accompanying diagram (which I have copied by permission from Prof. Flower's Classification of the Carnivora*), that the land *Carnivora* or *Fissipedia* may be conveniently separated into three large groups or sections, the *ÆLUROIDEA* (comprising the *Felidæ*, *Hyænidæ*, *Viverridæ*, &c.), the *ARCTOIDEA* (comprehending the *Ursidæ*, *Mustelidæ*, *Procyonidæ*, &c.), and the *CYNOIDEA*, which includes all the different forms of dog-like animals.

It should be observed that this is no mere arrangement of fancy. A careful study and comparison by various zoologists of the anatomy of most of these different forms (whenever opportunity has enabled the examination of specimens) has resulted in the publication of careful descriptions and figures, by means of which we are able to trace the relationships which are here indicated.

It need scarcely be said that the cranial characters, and especially the dentition (as indicating the animal's mode of life

* Proc. Zool. Soc. 1869, pp. 4—37. See also Proc. Zool. Soc. 1883, pp. 178—186.



E. Stanford, 1884, Cherry Press

PLATE 12

DIAGRAM OF THE RELATIONS OF EXISTING CARNIVORA.

and the nature of its food) have been regarded as most important in determining its zoological position;* and thus, this grouping (artificial or arbitrary as it may at first sight appear) really indicates in the case of each of these three sections, the possession by its members of certain characters in common which link them, as it were, together, and which being well marked are easily recognisable.

It will be seen, then, that the section CYNODEA holds a position intermediate between the ÆLUROIDEA and the ARCTOIDEA; its affinities with the former section, through the Hyænas, being indicated by *Lycaon pictus*, the Cape Hunting-dog, which possesses much resemblance to a Hyæna, and its relations towards the latter section in the direction of the *Mustelidæ* being indicated by that curious aberrant canine form the Bush-dog of Guiana, *Icticyon venaticus*.

This being the position of the *Canidæ*, then, in the order *Carnivora*, let us see what are the members of this family now existing in a wild state, and what their geographical distribution.

From a general review of these existing forms it would appear that they may be conveniently grouped into perhaps eight genera:—I. *Canis*, to include Wolves and Jackals; II. *Cyon*, the wild dogs, like those of India and Sumatra; III. *Vulpes*, the true Foxes; IV. *Fennecus*, the Fennec-Foxes, remarkable for their abnormally large ears; V. *Otocyon*, represented by a single species, the South-African large-eared Fox; VI. *Lycaon*, the Cape Hunting-dog; VII. *Nyctereutes*, the Raccoon-like dog of Eastern Siberia and Japan; and VIII. *Icticyon*, the Musteline-looking Bush-dog of British Guiana.

The last four of these genera, it will be seen, contain each but a single representative species. Of the Fennecs four species have been described, although it is by no means certain that they are distinct, for some of the differences noticed may be attributed to the altered conditions of life under which the so-called different species have had to live.

Of the wild dogs (*Cyon*), which have a somewhat different dentition to the typical *Canis*, four species also are recognised—two inhabiting India, a third the Altai Mountains, and the fourth

* See Prof. Huxley on the cranial and dental characters of the *Canidæ*, Proc. Zool. Soc. 1880, p. 238.

Sumatra. It is possible, however, that *C. primævus* of Northern India, and *C. dukhenensis* of Southern India may not be really distinct.

By far the largest number of existing wild species of *Canidæ* are comprised within the two great genera *Canis* and *Vulpes*, the Wolf-like and the Fox-like forms, the former containing more than a score of species, the latter more than a dozen.

As regards the geographical distribution, we find that throughout the whole of the Palæarctic and Neartic Regions both Wolves and Foxes abound. In the Ethiopian and Oriental Regions we find numerous species of Jackal; in North Africa, Asia Minor, and the countries bordering the Black and Caspian Seas, all the three last-mentioned animals are found; the African Fennecs and the Cape Hunting-dog having a more restricted distribution. The Neotropical Region is characterised by the possession of certain dog-like Wolves (or dog-wolves, as they are generally called), of which some ten or a dozen species have been described, several of which have been procured and exhibited in the Zoological Society's Gardens.* Their names will be found in the subjoined list of species of the genus *Canis*.

Genus *CANIS*.

<i>Canis lupus</i> .*	Common Wolf of Europe.
„ <i>hydropylax</i> .*	Japan.
„ <i>laniger</i> .*	Thibet.
„ <i>pallipes</i> .*	India.
„ <i>aureus</i> .*	India. Jackal.
„ <i>anthus</i> .*	North Africa. Jackal.
„ <i>variegatus</i> .	„ „
„ <i>mesomelas</i> .*	South Africa. „
„ <i>lateralis</i> .*	West Africa. „
„ <i>occidentalis</i> .*	North America.
„ <i>latrans</i> .*	„ „ Prairie Wolf.
„ <i>azaræ</i> .*	South America. Dog Wolf.
„ <i>gracilis</i> .	„ „
„ <i>rudis</i> .*	„ „
„ <i>microtis</i> .*	„ „
„ <i>cancrivorus</i> .*	„ „

* All the species of *Canidæ* to which an asterisk is affixed are those which are now, or were lately, living in the Zoological Society's Gardens.

Canis fulvipes.* South America.

„ *braziliensis*.* „

„ *retulus*. „

„ *magellanicus*.* „

„ *jubatus*.* „

„ *antarcticus*.* Falkland Islands.

„ *australis*.* Australia. Dingo.

The Common Wolf of Europe was, as we all know, once an inhabitant of the British Islands, and was only exterminated with great difficulty after payment of large rewards for its destruction, and burning down whole tracts of the forests which harboured these animals. As I have elsewhere entered very fully into the history of the Wolf in Great Britain,* I need say no more here than refer to the date of its extinction in this country. So far as I have been able to ascertain, it became extinct in England during the reign of Henry VII.; it survived in Scotland until 1743; and the last was killed in Ireland about 1766-70.†

With regard to the other members of the genus *Canis*, whether Wolves, Jackals, or Dog-wolves, the list shows their geographical distribution, and space will not permit me to enter upon the history of each one of them. I may refer, however, to the Australian Dingo, the last upon the list, because in some respects it is more remarkable than any of the others.

In appearance and colour (a reddish brown) it resembles the wild dogs of India and Sumatra (*Cyon primævus*, *dukenensis*, and *sumatrensis*), but in regard to its cranial characters and dentition it agrees with the typical *Canis*, and is perhaps more nearly allied with the Indian Jackal than any other species. It is an ancient form, and is believed to be indigenous to Australia in consequence of its remains having been discovered in caverns with the remains of other animals now extinct.‡ It is thoroughly wild still, but (as might be expected as a result of colonization) not nearly

* 'Extinct British Animals,' pp. 115—205.

† The evidence which fixes these dates will be found in the work to which I have referred.

‡ Prof. M'Coy states that he has identified remains of the Dingo in bone caverns beneath the basalt flows of Mount Macedon, associated with those of an extinct Kangaroo, *Macropus titan*, and recent species of *Hypsiprimnus* and *Hydromys*. (Ann. Nat. Hist., 3rd ser., ix. p. 145).

so numerous as formerly. The puppies are searched for and reclaimed by the natives, as I have already incidentally remarked (p. 394), and are trained to be useful in the chase.

It, or a variety of it, is also found in New Zealand, where it is said to have been introduced from Australia some two or three centuries ago.* The dog of the native New Zealanders, however (now extinct) was not the Australian Dingo, but a much smaller animal, resembling a Jackal, according to Dieffenbach.†

From the united testimony of the first voyagers to that country, it appears that the ancient New Zealand dog was much like those of Tahiti and other South Sea Islands; that it was merely a domestic animal; small in size, with pointed nose, prick ears, and small eyes; hair long and lank, of different colours, and a short bushy tail. It was a lazy sullen animal, with no proper bark, and with but small powers of scent.‡

From the statements of the natives it appears that the ancient Maori dog was of small size, and by no means numerous in the "pas" or villages; that it did not bark, only howled plaintively at times; that it would not bite man; that the owners were much attached to them, gave them names, and petted them; that some of them were trained to seize ground-birds (*wekas* and *kiwis*) for their masters, and this was effected chiefly by stratagem on the part of the native, who, when he went bird-catching, would take his dog with him, always leading him securely tied by a cord, and, squatting down concealed in a suitable place, held his dog, and imitating the cry of the bird he was in quest of, the bird came near, when the little dog was let go, and he ran and seized the bird and held it, or brought it to his master.

This native dog was useful in various other ways; for its flesh was used for food, its skin for clothing, and its hair for orna-

* Polack, 'New Zealand,' i. p. 320 (1838).

† 'Travels in New Zealand,' p. 184 (1843).

‡ See 'Cook's Voyages,' 4to, 1773, ii. pp. 152, 196; G. Forster's 'Voyage round the World,' i. p. 219; J. R. Forster's 'Observations,' 4to, 1778, pp. 189—208; Parkinson's 'Journal of a Voyage to the South Seas,' 4to, 1784. An admirable summary of all that has been contributed to this subject by these early voyagers has been embodied in an article by the Rev. William Colenso, "On the Ancient Dog of the New Zealanders," printed in the 'Transactions of the New Zealand Institute' for 1877 (vol. x. pp. 135—155).

mental purposes. This was the case not only in New Zealand, but in many of the islands of the South Pacific.

It would take too long to go into the history of the various other wild dogs which are to be found scattered over the world; but it will be of interest just to glance at some of those which exhibit a manifest resemblance to certain domestic breeds with which we are acquainted at the present day.

The Esquimaux Dog, for example, so closely resembles the Arctic Wolf, both in appearance and voice, that even so experienced an Arctic traveller as Sir John Richardson on one occasion mistook a pack of the former for a troop of the latter.

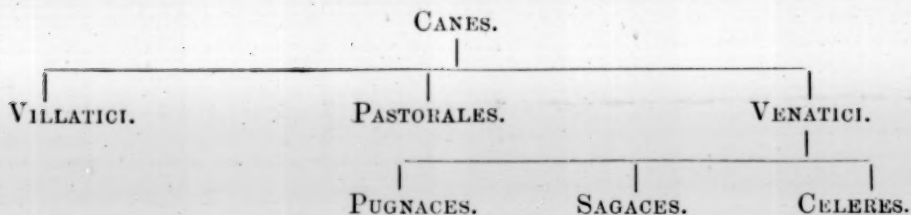
The domestic dog of the Hare Indians on the Mackenzie River is exactly like the Prairie Wolf, *Canis latrans*, though smaller. The Sheep-dog of Hungary resembles the European Wolf, and, according to Blyth, some of the Hindu Pariah-dogs resemble the Indian Wolf. In tropical countries, where Jackals take the place of Wolves, the domestic dogs closely resemble the former. In Tropical America, where Jackals are unknown, the domesticated dogs resemble the native wild dogs which take the place of them. In Australia, as we have seen, the Dingo occurs at the present day both in the wild and domesticated state.

Thus it seems pretty evident that more than one wild ancestor has contributed to the formation of the various domestic breeds which now exist. Reviewing this question of origin, in his 'Animals and Plants under Domestication,' Darwin concludes that it is highly probable that the domestic dogs of the world have descended from two good species of Wolf, *Canis lupus* and *C. latrans*, and from two or three other doubtful species of Wolves,—namely, the European, Indian, and North African forms,—from at least one or two South American canine species, from several races or species of the Jackal, and perhaps from one or more extinct species.

In this view I think we must concur, coming as it does from so high an authority.

Then comes the question of the classification of the existing breeds of domestic dog.

I have already referred to the way in which the Romans of old classified their dogs:—



So simple a classification as this might have done very well at that period, when the number of breeds then known was comparatively few. At the present day, of course, it would be quite inapplicable.

If we look at the classification of Dr. Caius, the author of a well-known Latin treatise on English Dogs, composed in 1576 at the request of his friend Conrad Gesner, and translated into English by one Abraham Fleming, we shall find that although it brings us nearer to the present day by taking in certain breeds which were unnoticed because unknown to the Romans, it is nevertheless at the present time more curious than useful:—

ENGLISH DOGGES.	Generous, or Thorobred.	Hounde.	{ Terrar. Harrier. Bloudhounde.
		Hunting.	{ Gasehounde. Grehounde. Leviner. Tumbler.
		Hawking and Fowling.	{ Spaniel. Setter. Water Spaniel.
		Delicate.	{ Spaniel Gentle.
		Country.	{ Shepherdes Dogge. Mastive, or Bau- dogge.
		Degenerate.	{ Wappe, or Warner. Turnespete. Dauncer.

According to Prof. Fitzinger,* there are at least 185 distinct varieties of the domestic dog, and considering that the origin of

* Fitzinger, 'Der Hund und seine Racen,' 1876. Prof. Fitzinger's classification is—(1). House Dogs, *Domestici*, 48; (2). Spaniels, *Extrarii*, 30; (3). Terriers, *Vertragi*, 12; (4). Hounds, *Sagaces*, 35; (5). Mastiffs, *Molossi*, 19; (6). Greyhounds, *Leporarii*, 35; (7). Hairless Dogs, *Carabæi*, 6; Total, 185.

many, if not most of them, is uncertain, it is not surprising that much difference of opinion should exist as to the most natural mode of grouping them together.

Their arrangement into the following six races, founded to a certain extent, on the form and development of the ears, perhaps affords an approximation to a natural classification:—

- | | |
|--------------------|---------------|
| I. Wolf-like dogs. | IV. Hounds. |
| II. Greyhounds. | V. Mastiffs. |
| III. Spaniels. | VI. Terriers. |

By the judicious crossing of these half-dozen types, it would seem possible, in time, to produce every one of the present existing breeds of domestic dog.

ORNITHOLOGICAL NOTES FROM NORFOLK.

BY HENRY STEVENSON, F.L.S.

(Concluded from p. 374).

A PAIR of Snow Buntings and a pair of Bramblings both nested, and had eggs, in my aviary in June, but unfortunately no young were hatched. In each case the male assumed the most perfect summer plumage. I also noticed for the first time in my experience, that a male Twite re-assumed the flame colour on the upper tail-coverts and a Lesser Redpoll the red on its forehead, which had been lost for a time, and is hardly ever re-assumed by such birds in confinement.

On the 18th of June, this year, I heard the Cuckoo's note seven or eight times repeated, when sitting in my garden, on the Unthank's Road, within a few minutes' walk of the Market Place; and a few days afterwards I saw one on a fence, as close to the city as Mount Pleasant Lane.

Lesser Redpolls and Goldfinches had nests and eggs in my aviary by the first week in July.

An adult Magpie, found dead on the 15th, and a young one trapped a few days later, at Northrepps, proved the nesting of that species in this vicinity, in spite of all precautions in the interest of game preservers.

On the 24th, I spent an hour or two on Surlingham Broad, but though a bright, sunny day and still, with a south-west

wind, both Reed and Sedge Warblers were strangely silent; the former, I was told, being very scarce. But I learnt afterwards from Mr. Robert Pratt, who is constantly on the water, that he had scarcely ever known the Broad so void of melody in marsh-birds' notes; and the same might be said of the cries of Coots and Waterhens, so terribly had these birds been thinned down in the hard winters of 1879—80 and 1880—81. They had not, in fact, recovered their losses, especially in the former winter, when, with the Broad frozen over, the half-starved birds were knocked down with sticks, or killed by dogs and Hooded Crows; and the remnants of the Waterhens took to the stackyards and upland fences. The Coots, after a time, left for the salt-marshes on the coast, where the gunners killed large numbers, and very few returned in the spring. Migratory birds were heard whistling over the city, one night, near the end of this month.

In the course of the summer I had ocular demonstration of the abundant breeding of wild-fowl on a Norfolk estate, where the strict preservation of game proves a sure safeguard. Here, on extensive waters, were seen many pairs, with their young, not only of the Common Wild Duck and Teal, but of Shovellers, Garganey, Pochards, Tufted Ducks, and Gadwalls, as well as Great Crested and Little Grebes. Further details as to locality, site of nests found, &c., are carefully preserved in my journal.

On the 1st of August a Hobby was seen at Northrepps. By the 12th and 15th I find the usual notes of migratory waders appearing on Breydon, and along the coast at Cley and Blakeney. Curlew and Green Sandpipers were very plentiful at the former place, where two immature Spotted Redshanks were shot on the 15th and 26th, and a few Pigmy Curlew and Knots. Four Cormorants appeared on Breydon on the 29th, and one Kentish Plover was obtained on the 21st; and a Black-tailed Godwit at Cley.

A Nuthatch visited my garden on the 7th, and was very busy about the trunk and branches of a cherry tree. This species nests, regularly, in some spot on the Unthank's Road, between my house and "Mount Pleasant" Lane, as I frequently hear its peculiar cry during the summer months.

I may here mention that Mr. H. M. Upcher, of Feltwell, informed me that he had reason to believe that the Short-eared Owl nested, once again, this summer in the fens at Feltwell.

A Red-necked Phalarope was sent me in the flesh from Yarmouth, shot on Breydon on Sept. 4th, and another was seen at the same time and on the same date exactly on which a specimen was killed there in 1881. There was somewhat a paucity of migratory waders at Yarmouth early in the month, though including Knots, Pigmy Curlews, and Golden Plovers (still with much black on the breast) and several Greenshanks; more than usual of this species. Terns, both Common and Lesser, were leaving about this time. Redstarts were still seen on the coast about Yarmouth late in the month, as well as many Golden-crested Wrens; and Siskins had arrived at Overstrand on the 18th, and Caister Denes on the 20th. Numbers of Titmice, Great, Blue, Marsh, and Long-tailed, in plantations near the sea; also a good many Kingfishers about Breydon water, of which, I regret to say, ten or twelve were shot, whether migrants or residents.

On the 21st a Hoopoe was killed near Barton, and another specimen, some time this month, at Sheringham.

Towards the end of September there seems to have been a very mixed assortment of waders at Yarmouth; and, in a list sent me by Mr. G. Smith, of birds shot on Breydon and on the beach between the 16th and the 25th, I find Little Stint, Reeve, Oyster-catcher, Greenshank, Dunlin, Sanderling, Bar- and Black-tailed Godwit, Green Sandpiper, Purple Sandpiper, Turnstone, Curlew, and Golden Plover.

A single Snow Bunting was seen on the beach as early as September 16th. Some Honey Buzzards appear to have arrived on the coast in the last week of September, as one was trapped at Northrepps on the 30th, and another, I understand, occurred at Flegg-Burgh near the same time, and at Lound, near Lowestoft, a third (all immature) about the 26th.

On the 3rd of October Snow Buntings appeared in considerable numbers on the Denes at Yarmouth, where about a score were netted, and I received three pairs for my aviary. An immature Hobby was taken on a smack off Yarmouth on the 9th, and Bramblings were plentiful in the same neighbourhood on the 13th. On the 5th an immature Little Gull was shot on Breydon. A Hoopoe was killed at Horsey on the 9th. On the morning of the 12th a Woodcock was shot on Yarmouth Denes, from a fresh flight, and about a dozen in that neighbourhood by

the 15th. Short-eared Owls also appeared there about the same date. On the 12th, at Blakeney, Mr. J. H. Gurney, jun., found numbers of Song Thrushes on the sand-hills, apparently just arrived. Gray Crows, first seen at Northrepps on the 9th, arrived in large numbers at Yarmouth on the 22nd, and some Fieldfares. On the 20th also, at Northrepps, a considerable flight of Jackdaws was seen passing inland. There seems to have been an arrival also of Magpies about Weybourne and Sheringham on the 10th; and, on the 17th at Northrepps, an apparent immigration of Robins, as observed by Mr. J. H. Gurney, jun. A good many Ring Ouzels appeared at Yarmouth and its vicinity between the 6th and 15th of the month (and several at Weybourne in September). Mr. Smith told me he had seven or eight specimens brought to him. And, of other birds in that locality, seen or shot, I may mention a Peregrine at Caister on the 14th, an immature Richardson's Skua on Breydon, same date; a Great Snipe at Bradwell on the 18th, and one at Lopham on the 28th, weighing $8\frac{1}{2}$ ounces; also a Grey Shrike on the North Denes on the 26th; and a young male Merlin at Barton on the 23rd.

A good many Spotted Rails were met with in the Yarmouth neighbourhood this month. The chief ornithological event, however, of the month was the arrival, in unusual numbers, all along the coast, of the tiny little Golden-crested Wren; their flights occurring at intervals of some days, commencing in the previous month, and noticeable up to about the 20th of October.

A single bird, which flew, exhausted, into a room in Dr. Beverley's cottage at Overstrand, close to the sea, on the morning of the 5th, marks the date, no doubt, of one flight; and on the 8th they were abundant in a plantation on the Caister road, near Yarmouth, and Mr. Smith described them in the same locality, and in like shelter, at Gorleston, as "very thick," on the 15th. In the neighbourhood of Cromer, Mr. J. H. Gurney, jun., noticed a very large arrival on the 13th, and they were numerous in the garden of Colney House, Cromer, on the 18th and 19th; and just at this date, twelve were picked up dead against the Hunstanton Lighthouse.

Among the Starlings, Skylarks, and other migrants killed at the Cromer Light, this month, was a specimen of the Knot Sandpiper, a very exceptional circumstance.

Another special feature of this month was the great influx of Shore Larks on the beach and denes at Yarmouth. They were first seen, Mr. G. Smith informed me, on the 15th, and from that date to the 29th about fifty were shot, of which thirty passed through his hands; and of these he believed only six were females. Two were shot at Cley, out of a considerable flock, on the 30th. Twenty years ago I gave a long price for a Yarmouth specimen, as one of our Norfolk rarities.

The wild-fowl killed on Breydon this month consisted only of a few Pintail Ducks, Wigeon, Mallard, and Teal, a few Grey Geese, of what species not known; a large flock was observed, flying, at Northrepps on the 25th, and a lot of seven Sheldrakes on the 23rd. The fearful gale, however, from the east on the 27th, drove hundreds of gulls, large and small, in shore, which sought Breydon waters for shelter.

November, mild, wet, and stormy, and with but slight frosts, afforded little sport to the gunners. The only winter fowl at Yarmouth were represented by a few immature Scaups, Golden-eyes, Red-breasted Mergansers, and Goosanders, on Breydon, and considerable flocks of Scoters out at sea. Several young Slavonian Grebes were also met with, and about sixteen Whoopers appeared, but passed on in safety.

The paucity of *Tringa*, both on the beach, and Breydon muds, this month, was remarkable; but Snipe were at times very plentiful in the marshes, with hundreds of Lapwings.

A few Shore Larks still frequented the Denes, and five more were shot in the first week, and two on the 25th, and one caught alive, which came to my aviary. A pair were seen at Hunstanton on the 2nd (when Skylarks and Hooded Crows were arriving off the sea all day), and three were shot at Blakeney the same week. Large flocks of Wood Pigeons were observed coming inland at Northrepps on the 5th, and Lapwings, in successive flocks, high up, on the 23rd.

Of other occurrences may be noted a fully adult male Shoveller, in brilliant plumage, shot near Yarmouth on the 3rd. A Norfolk Plover, from Swaffham, as late as the 8th of this month, which was very fat, and weighed 1 lb. 6 oz. A Fork-tailed Petrel was said to have been for sale in Yarmouth market. A Crossbill, shot from a flock at Caister, near Norwich, and a beautiful adult male Merlin at Caister, by Yarmouth. Two or

three Great Spotted Woodpeckers, seen this month in unusual localities near the sea, had, no doubt, arrived on this coast. The last House Martins seen this year were two young birds of a very late hatch, flying feebly about Bracondale Hill on the 8th of November.

Several rime frosts and one severe night when eight degrees of frost was registered, in December, did not avail to bring wild-fowl, or other winter visitants, to our shores in any numbers; and the list of occurrences on any part of the coast is but a meagre one.

When going up to London by rail on the 4th, I saw a prodigious quantity of Lapwings rise from the meadows near the Lakenham Viaduct. I should say between three and four hundred. I never before saw so many in one flock; and with the sun on them, as they rose and spread out, it was a beautiful as well as a remarkable sight.

The scarcity of waders on Breydon was the same this month as last; and a few Knots and a Bar-tailed Godwit, shot on the 19th, was an event amongst the gunners. Golden and Green Plover were plentiful, and a good many Wigeon appeared on the 3rd, and a Whooper was shot on the 11th. About the 16th, seven Goosanders were sent into Yarmouth, one an adult male, shot in the neighbourhood; and three other young birds had been killed on Breydon with one or two immature Red-breasted Mergansers. Immature Golden-eyes were the only "hard-weather" fowl, and one or two Greylag Geese were shot on the coast—eight seen in one flock; and three Bean Geese in the marshes near Yarmouth. Two more Slavonian and one Red-necked Grebe were also obtained on Breydon. On the 8th another Little Gull was shot on the beach, and an immature Hen Harrier, male, on the 15th. Two Bitterns, from Hickling, were for sale in Yarmouth market; and a Peregrine Falcon was shot on Breydon on the 13th.

Early in the month, three Great Gray Shrikes were killed in the county, at Loddon, Aylsham, and Fakenham.

Waxwings were seen, and two or three shot at Palling, Sheringham, and Hunstanton; at Yarmouth, one was killed in the "Apollo Gardens" on the 14th, and two were reported from Gorleston on the 17th. Woodcocks were numerous about the 15th, when thirty were shot in the coverts at Hempstead.

THE FINWHALE FISHERY ON THE COAST OF FINMARK.

BY ALFRED HENEAGE COCKS, M.A., F.Z.S.

(Continued from p. 370.)

VERY little, ornithologically speaking, was observed during the cruise; but about this time a duck—I think a female Long-tail—flew past us; and about an hour later a Mealy Redpoll came on board, and settled on the steam-winch, close to where the mate and I were standing; on my trying to catch it, it flew forwards, and remained some minutes trying to eat the frayings of the whale-line coiled in front of the gun on the iron tray or sheet previously described; it finally flew away in the direction of the land. Rather later I saw distinctly, and watched for some little time as it swam, a Razorbill, a bird which, so far as my experience goes, is decidedly rare on the Norwegian coast. I afterwards saw a Skua, which may probably have been *Lestris pomatorhinus*. Kittiwakes, once or twice in large flocks, probably feeding on Coal-fish, complete my list of birds.

The harpooner told me that Common Rorquals, when sounding, never throw their tails out of the water, like the Humpbacks, but the Blue Whales do so sometimes. He descended from the crow's nest and joined us at dinner about 12.20, and reported four steamers after about as many whales. Ten minutes later we also started after a Humpback, and very soon found that there was a pair in company, the larger having a wound on the right side, forward of the fin, and hence reasonably supposed to be the individual we had shot at yesterday. The chase was very interesting, and at times intensely exciting. Once I saw one of the whales, on its side, put its long flipper straight up out of the water. They generally dived and came up again nearly at the same time; once they both sounded at the same instant, and once we got between the two; two or three times spray came over us from their flukes. After some time one whale left, and we continued after the one with the mark on its side; it had evidently learned wisdom by experience, and kept well on the look-out. The range of the harpoon-gun, from the weight it has to propel, and more especially from the great weight of the line stopping its momentum, is very short: I cannot give the range accurately in yards, but it is only about, or very little more than,

what is roughly called "pistol-shot." At length the whale miscalculated its distance while under water, and came up right under our bows, heading from us; the harpooner immediately pulled the lanyard attached to the trigger, but the cap snapped! As soon as the gun was recapped we continued hunting, but the whale did not give us another chance, though we were never very far away. At last, soon after 6 p.m., we gave this whale up as a bad job, and went after another which we saw at some little distance. This whale (or it may have been a different one again) proved on approaching it to be a Common Rorqual, which sounded for very long periods; the longest that I timed was not more than three minutes, but some of the soundings before I began to time them were probably three times as long. Just as the steward announced supper at seven o'clock we saw another whaler fire and get fast to a Humpback. After watching for a few minutes I went below, and hurrying over supper hastened on deck again, when I found the poor beast was screaming every time it rose to the surface; the screams being distinctly audible from our deck, though the whale was (according to the mate's estimate) more than an English mile from us. I was told by the Norwegian whalers that the Humpback Whale is the only species which appears to have a voice, but in 'A Whaling Cruise and History of the Whale Fishery,' by J. Ross Browne (London, 1846), the author speaks of a Sperm Whale, when harpooned (page 209), giving "a tremendous hollow roar, like that of an infuriated bull."

The screaming of the Humpback is referred to in 'Recent Memoirs on the Cetacea by Professors Eschricht, Reinhardt, and Lilljeborg' (edited by Prof. Flower, and published by the Ray Society, 1866), in the 'Synopsis of Scandinavian Cetacea,' by Lilljeborg (p. 293), where he mentions a case of a young Humpback caught at Godthaab (Greenland), which still followed the mother, who was for several days afterwards seen swimming about in the same bay in the greatest anxiety:—"Her sudden jumps and a peculiar way in which she spouted, often with an audible bellowing sound, plainly indicated her grief." The sounds which I heard emitted by this species I should rather describe as a shrill scream, reminding me very forcibly of the gruesome sounds uttered by a wretched pig when being rung or stuck, but somewhat less shrill.

During the short interval that I had remained below we had commenced hunting two Common Rorquals in company. Presently we saw the whaler, which was fast to the Humpback, lower a boat and proceed to lance the unfortunate animal; my shipmates, who although Norwegians, are I suppose the kindest-hearted people in the world, had grown callous to the sufferings of a whale, and shouted with laughter at every fresh scream uttered by the huge beast in its agony. Exactly an hour from the time of harpooning it the "flurry" took place; the whale turned on its side, churned the water with its long flipper, at length died, and immediately sank.

We continued meanwhile hunting our Finner, and half an hour later it gave us a chance. It rose just ahead of us, and came right towards us, shaving close past our starboard bow—so close that I for one expected to feel it collide with our hull. At the moment when he was right under our bow the harpooner pulled, but the cap again missed fire! Everybody's disgust and disappointment may perhaps be imagined. We continued hunting it, and three-quarters of an hour later it passed us on the starboard side; the harpooner again pulled, and this time the gun went off, but the harpoon fell harmlessly into the sea. The men said afterwards they thought the whale was too far off, and that the harpoon fell short. By the time that we had reloaded it was too dark to hunt, being about a quarter to ten; so steam was let off, and we lay by for the night.

The following morning we were under steam soon after five o'clock, again a beautiful morning. We hunted a Common Rorqual—whether the one seen the previous evening there was nothing to show. Meeting the steamer that we had seen kill a Humpback yesterday, we stopped for a talk. She had towed it into Tana Fjord, and came out again without loss of time. She had taken a large Blue Whale on the 26th, which I afterwards saw in Vardö.

After some time our Finner disappeared, and we went after a Humpback, which we soon perceived was the same one that we had hunted so long the previous day with the wound on its right side, showing that they keep their ground to some extent. Just before eight o'clock it gave us a chance, coming up on our starboard bow, and the harpooner fired. The whale, as is usual, disappeared instantly, and then came a few minutes of almost

breathless suspense before we could tell for certain whether the harpoon was in him. He proved to be fast, and we presently saw the harpoon in his left side, high up on the back, a little way below the fin. The harpoon being near the vertebral column apparently prevented his sounding, and he never went far down. Once or twice he put his head out of the water and turned over on his back, and nearly every time he spouted he screamed. A boat was lowered for the purpose of lancing him, with four men to row, a boat-steerer, and harpooner. They rowed carefully round astern of the whale, and then watching their opportunity, approached, and the harpooner lanced it; the operation was repeated whenever an opportunity offered. Once he dug the lance in so deep that he had to leave go and haul it in by the line attached; when recovered the lance was much bent, and had to be straightened before being again used. Presently the whale swam a little away and spouted blood, and, dying soon afterwards, sunk. On the return of the boat the crew told us that they had heard the shell explode while they were close to the whale, and this accounted for the somewhat sudden death, which took place three-quarters of an hour from the time of harpooning. Having hoisted the boat and waited a minute or two to see whether the whale were really dead (for, having previously killed only one or two Humpbacks, they were not sure of the behaviour of this species), we began heaving on the line (of which it had taken out seventy fathoms) with the steam-winch, and using an india-rubber relieving tackle or multiplier attached to the foremast, similar to that used on the 'Challenger' Expedition when the dredge was used while the ship was under sail.

One of the reasons, I believe, why the Humpback Whale is seldom or never hunted by the Scotch or American whalers (independently of the small amount of blubber on them) is that this species almost always sinks when killed (no doubt in consequence of having so little blubber), and the lines used in open boats are not strong enough to haul it up by. Even the huge hawsers used by the Norwegians off the Finmarken coast are not strong enough to bear the enormous weight of a large Blue Whale, and I was told of a whaler who had killed a large example which sank, riding to it for three days, and then thinking it must by that time have become sufficiently inflated

by gas to be light, commenced heaving in; to the surprise of the whole crew the harpoon came up quite easily, and they discovered that the detested Greenland sharks had eaten, if not the whole whale, at least the blubber and muscle round the wound, freeing the harpoon.

We continued heaving gently until the flukes came to the surface, when the engine was immediately stopped, and the "pram" (a small boat answering the purpose of the English dingy) was lowered with a couple of men, who put two bights of chains round the tail, just in front of the flukes; these chains were carried to the foremost tompions, and secured aft. The flukes were cut off with a blubber-knife, as they would considerably increase the resistance in towing; and at once steaming ahead the body swung round, and we began towing it tail first, the whale lying alongside the steamer. In this position the harpooner and I measured him as well as we could in a straight line along the deck; but as the huge body was plunging and surging about in a moderate sea, with the head more or less under water, we could not arrive at great accuracy, but it was about forty-four feet long, and was a male; a few measurements are given lower down.

We took it to the west centre of the entrance to Tana Fjord, about ten English miles (or perhaps rather less) from land, viz., in about 71° N. lat., and $28^{\circ} 52' 30''$ long. E. G. The towing began about 9.30 a.m., and we proceeded at about three knots per hour, using full speed (twenty-five horse-power); the wind freshened in the afternoon, and by about 4 p.m. it was blowing a fresh breeze, gradually moderating towards evening. We arrived of Vardö at 1.30 next morning, and after an early breakfast (5.30) I went ashore.

I made the following scanty notes on *Balænopteriðæ* :—

Humpback Whale (*Megaptera boöps*, Fabr.) — Norwegian names, Knöl, Pukkelhval,* or (Finmarken) Trolldhval. Specimens seen, three males, estimated at about 30, 40, and 44 feet respectively in length. A foetus $34\frac{3}{4}$ inches long; a skeleton roughly cleaned (by Dr. Guldberg), &c.† The colour of the

* Dr. Guldberg, 'Vardö Posten,' Aug. 12th, 1883.

† In addition to these were living specimens, and another dead one or two seen from some distance.

whole upper side of the body, and both upper and lower parts of the head, jet-black. The under side towards the tail end is also black; the remaining portions varied in the three males I examined.

In the specimen about forty feet long (Aug. 23rd) the throat, with the furrows and nearly the whole of the under side, was white; part of the under side of the flukes white; the flukes were about 15 ft. across, narrow, notched along the free edge. The flippers measured 11 ft. 4 in. to the head of the humerus; breadth at their broadest projection 3 ft. 2 in.; opposite axilla 2 ft. 1 in. The flippers were black on the outer side, white on the inner, the black extending round the edge to the inner side, with an occasional blotch of black, and two or three black rings—looking as if the outer side had been painted black, and the colour brought well round the edge to prevent the white showing from in front.

In the specimen about forty-four feet long (the one caught during my cruise) the under side was entirely black, except two white or marbled patches on the chest, just aft of the flippers, and one or two tiny white spots not bigger than crown-pieces about the belly; half the lip of the navel was white. Flippers all white on the inner side; proximal quarter of the outside black, but the black stopping short of the anterior margin. Length from blowholes to end of nose, 7 ft. 10 in. Greatest width of skull, a few inches anterior to blowholes, at the zygomatic portion of the frontal bones, 5 ft. 4 in. Length of flipper, including humerus, 15 ft. (about 13 ft. 9 in., measured to the skin at axilla); width of flipper at proximal notch, 3 ft. 7 in.; width of flipper at biggest notch more than half-way down, 3 ft. 1 in. Height of fin at after end, 9 in. The flukes having been cut off, not to be in the way in towing, I could not measure their width, but from fore to aft at the middle line they measured 3 ft. 7 in.

The specimen about thirty feet long was almost entirely black on the under side, flippers quite white on the under side, and only black on the upper side a little way down from proximal end. This species may be immediately identified by the remarkably long, unnatural-looking flippers; they are not distinctly curved or scimitar-shaped, as in the Rorquals, but are nearly straight and deeply notched or undulated along the anterior margin, and to a slight extent on part of the posterior also.

The dorsal fin springs from a small hump on the back; Lilljeborg (Recent Mem. Cetacea, Ray Soc.), p. 289, thus describes it:—"The dorsal fin has rather a long base, but is very low, and in old specimens has the appearance of a hump, having thereby given rise to one of the names of the animal." The measurement which I took of the height of the fin (9 in.) was independent of the base. The baleen is quite short, and entirely black, the fringes or hairs on the inner edge being of a lighter tint than the faded brown of the under side of a Hedgehog. The tongue is very soft and flaccid, attached throughout its length, and black in colour. The palate between the rows of baleen is flesh-coloured, and convex downwards instead of concave, as in most animals. When the skin and blubber had been removed the pelvic bone could be felt, slightly forward of the centre between the penis and the anus, and probably at least two feet from the median line in the specimen about forty feet long.

A skeleton of this species prepared by Dr. Guldberg, and lying at the time of my visit on the quay, ready for shipment, has an exostosis or enlargement of the bone on the middle of the under surface of the right maxilla. There is a large projection on the central line of the under side in this species, about midway between the anus and the flukes. There are two transverse creases or folds of the skin about two feet respectively in front of and behind the anus, dividing the median line of the under side.

A foetus, from a whale killed about August 21st, I brought home and gave to Prof. Flower for the Museum of the College of Surgeons. It measured $34\frac{3}{4}$ in. Girth behind flipper, 21 in.; length of flipper, $9\frac{1}{2}$ in.; breadth of flipper to largest projection on anterior edge, $2\frac{1}{2}$ in.; breadth of flukes, $8\frac{3}{4}$ in. It was flesh-coloured, and its eyes were open.

Doubtless everyone who has seen a dead whale ashore has noticed its greatly inflated condition, and probably put it down to putrefaction; but in the only case that came under my observation, *viz.*, the example of this species which I saw killed, swelling began almost immediately after death—that is to say, it was perceptible after the lapse of about an hour, and the inflation steadily increased, the belly gradually rising more clear of the wash of the sea. Another individual of this species which I saw being towed in the offing by a whaler who had picked it up floating at sea, and which had probably been dead some days,

was so much inflated as to float high out of the water, and resembled a balloon rather than a cetacean.

The parasitic Crustacea, *Diadema coronula*, L. (*balenaris*, Lilljeborg), with *Conchoderma* (*Otion*, Lilljeborg) *auritum*, L., growing on them, were very numerous on the Humpbacks I examined, while "lice" (*Cyamus*) were in thousands; I found some under the skin at a depth of two inches or so beneath the surface.

Dr. G. A. Guldberg, Conservator of the University Museum in Christiana, was sent for, I think, two seasons to East Finmarken, to study the Cetacea on the spot; and now goes up there during the summer on his own account to prepare skeletons, for the sale of which he is in correspondence with many of the principal museums of Europe. He has probably had greater opportunities of studying the life-history and anatomy of the three species—the Sibbald's and Common Rorqual, and the Humpback—than any other authority. He delivered a lecture on Whales in Vardö last summer, a verbatim report of which was published in the 'Vardö Post.' The whole account is very interesting, but I must confine my quotations to his remarks on the coloration and reproduction of each species. He also went for a cruise on one of the Finmarken whalers, an account of which he published in 'Norsk Jæger-og Fisker-Forenings Tidsskrift,' 1883, p. 89, *et seq.* He was not fortunate enough to see a whale killed during his cruise. One Englishman had been for a cruise on one of these whalers before me, but he also was not lucky enough to see a whale killed; and I am, I believe, the only amateur so far who has seen a whale killed in this comparatively new fashion.

(To be continued.)

NOTES AND QUERIES.

The Albert Memorial Museum, Exeter.—At Exeter on Sept. 12th, the presentation of a silver salver, a diamond locket, and one hundred sovereigns was made to Mr. and Mrs. W. D'Urban by the Mayor, in recognition of their services in connection with the Albert Memorial Museum, of which Mr. D'Urban has been curator for twenty-two years.

MAMMALIA.

The Growth of Deer-horns.—A friend has sent me 'The Zoologist' for September, with your article on the growth of deer-horns. It is a subject in which I take a great deal of interest, for I have had some opportunity of studying it, as we have here the heads of some seventy deer killed during and previous to my great-grandfather's mastership of the North Devon Stag-hounds; and I have been Master of the Devon and Somerset Stag-hounds since April, 1881, since which date we have killed some eighty stags and male deer. I hope therefore you will excuse me if I offer some observations on your paper. I am sure that a deer's horns alone are a very uncertain guide to his age, though between them *and his teeth* you can tell a good deal about him. I doubt if deer in a wild state bring their heads to perfection as quickly as Dr. Clarke's did, for though it is true he had only one small piece of ground to get his living off, yet as that was only an acre, he could not have taken a great deal of exercise. It would have been interesting to know what his weight was when killed. The horns of Clarke's deer are in the museum at Exeter, and if I saw them on a wild deer I should certainly say the animal was a year older than Clarke's deer was when he had them each year on his head, as they are big well-developed horns, and this has much more to do with the deer's age than the number of points. Quite young deer will have eight and ten points, though both horns together are no bigger than a single one well grown with but four or five points on it. But I do not believe a deer ever has more than twelve points till his sixth year, and he will not have so many *well developed* before that time. I doubt the correctness of your statement that a deer has as fine a head at six as he ever will have. I think up to nine or ten years old the horn gets more points on it, and may improve in all respects. I am sure deer don't have fifteen or sixteen points much earlier; after that age it gets narrower and the points shorter, though I write this under considerable reservation, for Lord Brownlow told me that his Red-deer at Ashridge go on improving till fourteen, at which age they have twenty-four to twenty-eight points. He showed me the head of a deer thirty years old; it had nearly thirty points, but was short and hoop-headed. My predecessor, Mr. Bisset, ear-marked and turned out several deer; these occasionally come to hand, and give us information. On August 28th, 1882, we killed a great big stag, with brow, bay, and tray antlers, and two on top of one horn, four on top of the other. He was proved by ear-marks to be seven years old. On August 30th, 1883, we killed another ear-marked deer; he had brow, bay, and tray, and four on top of both horns. He was eight years old, but I should doubt if his horns were any heavier than those of the deer killed in the previous year. On September 1st, this year, we killed a deer also ear-marked with "B. B. T. 2" on both horns; he was five

years old—the age which, without knowledge of the ear-marks, my huntsman assigned to him. All these deer had lost the velvet. My huntsman has a theory that early calves lose it sooner than later ones; but there is only a week or ten days difference in the time of shedding the velvet, and at least three months, if not more, in the time of calving. This I know by observation. Moreover, we have been obliged of late years, by the increasing number of deer, to hunt hinds as late as March, and the development of the fœtus differs very much. I do not know if you have noticed it, or can give any reason for it, but in English and Scotch Red-deer it is the exception for the bay (or second) antler to be longer than the brow, while that is the rule in the Kashmiri, Bara Singh, and the American Wapiti. But deers' heads grow all sorts of ways. We killed a stag last year, which, from his teeth, was very old, with a head like this [the sketch shows a head without bay antlers, and clubbed at top, the knob on the off-horn being eleven inches in circumference; that on the near-horn nine inches.—ED.], and another not long before with a palmated top. A curious thing about the former was that his "slot" was no bigger than that of a four-year old, and his testicles also were small, though the condition of his teeth left no doubt as to his age being great. Three years ago, too, we killed a stag with knobs on his horns, and he was only a six- or seven-year-old stag. But the strangest head I ever saw was one killed in the Duke of Bedford's park at Woburn, being more like a Fallow-deer's head, only very irregular, and with the horns squeezed up against each other. I may add that the modern heads here, notwithstanding the crossing against which Dr. Clarke inveighs, compare favourably with the ancient ones. The bay antler is as often as not missing all through. Since writing the above I have seen a pair of horns which were shed this spring by a stag we killed the other day. They had two on top one side and three on the other. When we killed him he had three on top both sides and the horns are somewhat larger. He was apparently an eight-year old deer; and I know another similar instance. A very fine stag was killed some years ago near Holincote, with I think five and four on top; the horns he shed the spring previous had one point less, and were somewhat smaller all over; both pairs are in the possession of Sir T. D. Acland. This was one of the heaviest deer ever killed, and was supposed to be nine or ten years old. Our late Master, Mr. Fenwick Bisset, who died the other day, left me his hunting records and papers, and I expect that from them I could give you further particulars as to the horns of deer whose ages were known by ear-marks, as also of a castrated deer having horns like another. We have a theory down here that if a stag fails to grow his bay antler when he ought—*i. e.*, at three years old or thereabouts—he will never do so; but I rather doubt if this always holds good, though no doubt it often does. We hunted a stag on Sept. 15th which still had velvet on his horns. Lord Portsmouth has the head of a stag

killed by his father, which has only uprights, about eighteen inches long, such as a yearling might have, only wider spreading; but an old sportsman who saw him killed told me he was the biggest stag he ever saw. Lord Graves, on giving over the Mastership of the Staghounds to my great-grandfather in 1812, wrote thus about the points on stags' horns at various ages:—"A male calf has no horn; a brocket (after one year old the male is termed a 'brocket'), only knobbers and small brow antlers; a spire (three-year-old), brow antlers and uprights; a staggart (four-year-old), brow and tray antlers and uprights; a five-year-old deer, brow, bay, and tray antlers, a crocket or two on top of one horn, and an upright on the other; a warrantable stag (six-year-old), brow, bay, and tray antlers, and two on top of each horn: after this age their heads vary much in appearance."—EBRINGTON (Castle Hill, North Devon).

Growth of Deer-horns.—Having just read your interesting article on the "Growth of Deer-horns," in the 'Zoologist' for September, I venture to send you a few remarks bearing on it. You say "It is believed a deer at six years' old will carry as fine a head as he is ever likely to do." This statement seems strange; for assuming, for the sake of argument, that the majority of stags have attained their rights and three crockets on top of each antler at six years old, for years after this number is reached the stag, if healthy, will usually have one point at least added to the crest of the horn every year, until a bullet or natural causes cut short its course. A case in point came under my notice, of a stag of twelve points having one point added every year until the number had reached seventeen, and that number would in all probability have been further increased had not the stalker's bullet interfered. In overcrowded districts the antlers are very often almost rudimentary, and often, if well shaped, deteriorate at an early period; but, on the other hand, when the deer are few and the grazing good, there is very little supposition for concluding that the antlers do not attain great size, with many points, as age increases. I remember once picking up a single antler with ten points, perfectly developed, the coronet well spread and the bone furrows very deep, plainly indicating the stag to be of considerable age and size. Assuming the fellow antler had ten points, this would give eight points added after six years had passed. The experience of Mr. Clarke could hardly be taken as a test case, for not only were his observations confined to a limited area, but the stag he takes as a type was in confinement. The experience of Mr. Collyns (Dulverton) set forth at length in his book ('The Chase of the Wild Red Deer,' 1862), is more in accordance with general notions on the subject. He undoubtedly was of opinion that, until natural decay or disease afflicted the animal, a gradual yearly increase, both in the size of beam and number of points, was kept up. I should like to see the collection at Mr. Stevens's, for Germany is the land of well-developed antlers now-a-days.—HERBERT GOW STEWART (Hole Park, Rolvenden, Ashford.)

Notes on Mammalia of Northamptonshire.—The Polecat, *Mustela putorius*, though formerly very common in this neighbourhood, has become so rare therein of late years that I consider the capture of a pair during the past winter as worthy of record. I was laid up and unable to write at the times of capture, which occurred with an interval of several weeks between them, and regret that I have not an accurate record of the month or day; but my impression is that the first of these two animals was trapped about the beginning of this year in a plantation which has been hitherto the place of execution of almost all of the few Polecats that we have taken in this neighbourhood during the last twenty-five years; this individual was a female, and not a very large one; the second, a very fine male, was caught—I think in March—at an old stone pit just outside our deer park. My neighbour, Mr. G. Hunt, of Wadenhoe, found the head of a Pike, *Esox lucius*, recently killed by a small Otter, *Lutra vulgaris*, whose tracks were quite fresh, on March 2nd. I record this, because Mr. Hunt assured me that this Pike's head weighed three pounds. May 31st, one of our people brought in an orange-coloured Mole, *Talpa europæa*, var., alive and uninjured, but it declined food, and died in a few days.—LILFORD (Lilford Hall, Oundle, Sept. 14, 1884).

BIRDS.

Hoopoe in Sussex.—I learn from a friend in Sussex that during the first week of September a Hoopoe, *Upupa epops*, was shot at Alfriston, and is in the hands of Mr. J. Balcombe, Southover, Lewes, for preservation. Many persons regard this as a rare British bird, but the regularity with which it makes its appearance in spring and autumn, shows that it would be very much commoner if people would only abstain from shooting it whenever it appears. In France, where it is common in some parts, I have seen it strutting about on the grass within sight of the windows, raising and depressing its crest, and uttering its singular note "hoop-hoop," "hoop-hoop." A more curious and attractive bird on a garden lawn can scarcely be found.—J. E. HARTING.

Food of Sparrows.—Having been asked to collect information on the food of Sparrows for the Norwich Chamber of Agriculture, I should feel extremely obliged to anyone who, having kept dated dissections, would allow me a sight of them. Capt. E. F. Becher sent me two of the larvæ (from apple trees) on which Sparrows were recently feeding in Nottinghamshire (Zool. p. 342), and I forwarded them to Mr. C. G. Barrett, by whom they were identified as *Teras contaminana*, Hüb. Instances of adult Sparrows eating any insects except small beetles, in the summer months, are rare. Nor are the young habitually fed on caterpillars. Far from it; I have opened several which contained none, and many in which corn largely preponderated. There is no doubt that the good which Sparrows do has been

greatly exaggerated; whether the good is enough to balance the evil is another point.—J. H. GURNEY (Northrepps, Norwich.)

Ruff and Green Sandpiper in Co. Sligo.—On September 8th I was presented by Mr. C. Little with a specimen of the Ruff, shot by him a few days previously, when Grouse shooting on a lone flat moor near Tullylin, in this county. The bird was probably a female, but owing to its bad condition, I was unable to ascertain its sex with any certainty. The Ruff is a very rare bird in this western district, this being the first specimen I have met with, or even heard of, and in Thompson's 'Birds of Ireland' there is no record of its occurrence on the western coast. On August 28th, when walking through Castletown demesne, I disturbed a Green Sandpiper as it was feeding along the bank of a stream running from a mill-pond. I was surprised at its unusual tameness, for on being flushed it flew only a few yards, and alighted on the muddy bank of the pond, and gave me a good opportunity of observing it for some time at a distance of about forty yards. From its very dark plumage it was evidently an old bird. The Green Sandpiper is of very unusual occurrence in this district—sometimes a period of several years elapses between its visits; the last noted occurrence was in 1877, when I shot an immature bird on October 4th.—ROBERT WARREN (Moyview, Ballina).

Water Rail near Penzance.—I received a Water Rail which had been killed by flying against the telegraph-wires near Marazion station. On taking it to Mr. Vingoe to have it set up, I found that he had already received two others on that day from places within the district. The bird is a scarce one in this neighbourhood, and does not, I believe, breed here. This coincidence of three specimens received together suggests a migration.—THOMAS CORNISH (Penzance).

[The late Mr. Rodd, in his 'Birds of Cornwall,' writes of this bird (p. 134):—"In sedgy morasses and overgrown wet ditches the Water Rail is sometimes met with. It is probably not uncommon, but from its skulking habits and disinclination to take wing, unless pressed by a dog, it doubtless often escapes observation."—ED.]

Black Stork near Rainham.—About the beginning of July a large heron-like bird, with black back and belly white, was seen by a shepherd on an island marsh near here. On Sept. 8th Mr. Charles Gordon, of Dover, being at my house, we happened to go on the same marsh to shoot, and beside the shepherd's house on the creek shore we found a skin of a bird very much decayed, which Mr. Gordon pronounced to be the skin of a Black Stork. From its appearance we assumed that it must have been lying there for about six weeks, floating on the shore with the tide. I picked up the pinion of one wing, one foot, and the skull. On questioning the man he said that he had captured it at a small splash of water

where eels had collected, all the rest of the ditches in the marsh, from the long warm dry weather, being quite dried up.—WALTER PRENTIS (Rainham).

Ornithological Notes from Dorsetshire.—On August 5th I met with a Greater Shearwater, *Puffinus major*, in Durlleston Bay, Swanage. As it was not shy I got within a few yards of it several times, and when disturbed it took only a short flight, settling down again upon the shore without any apparent alarm. I left it floating in the bay quite close to the shore. The next day I saw it in Swanage Bay. As I have not since heard of its capture or death, I would fain hope it has escaped the usual fate of rare birds in the neighbourhood of Poole. Two pairs of Stone Curlews (*Edicnemus*) selected a fallow field in the neighbourhood for their nests. Unfortunately it required reploughing before the young were hatched, and both nests were destroyed. Three broods of Pochards were produced this summer on their usual breeding ground, which a pair selected about seven years ago for the first time; at least there is no record of such an event before. The present is a good season for Sheldrake; several broods have been noticed in the Poole Estuary, but since the termination of the close season their numbers have been sadly diminished. A Snipe which I flushed the other day, after taking a short flight, settled upon the highest branch of an ash tree, and remained there until I again disturbed it, wishing to satisfy myself that I was not mistaken.—J. C. MANSEL PLEYDELL (Whatcombe, Blandford).

Blue-throated Warbler on Spurn Head.—On Sept. 15th I saw two Blue-throated Warblers on Spurn Head, and shot one of them. I afterwards wounded the other, but lost it. On the 18th I procured three more, one of which is a male, I think of the second year; the other two are birds of the year. These Bluethroats were all feeding on insects amongst the bent grass covering the headland. They could hop very fast; I sometimes put them up thirty or forty yards away from the spot I had marked them down.—THEO. FISHER (Erfurt Lodge, Greenwich).

Nesting of the Black Redstart in Bavaria.—On the very day that a window-frame was put into a house in the process of building at Partenkirchen, Bavaria, a pair of Black Redstarts (*Ruticilla titys*, Scopoli) commenced their nest in the space between the arch of the opening and the frame itself. The men worked daily in the room without the birds minding them, and the eggs in due course were hatched. Soon after this it became necessary to move the nest for the purpose of finishing the room. It was accordingly carefully removed and placed in a small box hung up outside the window under a joist intended to support a future balcony, and about a yard from its original position. The birds made no objection, and in due time the brood was reared. I am inclined to think that the males do not change their plumage until the second year. A young pair, in the plumage described by Dr. Bree under the name *Ruticilla cairii*, built their

nest under my balcony last year, and reared their brood. This year a similar pair built within a foot of the same spot, and reared a brood. The male is now (September 5th) beginning to change to the darker plumage. I think it was the same pair, because they occupied the very twigs they did last year, and approached the nest exactly by the same route, and were even more friendly this year. They remain here throughout the winter.—MICHAEL FOSTER WARD, Col. (Partenkirchen, Bavaria).

Green Sandpiper in North Yorkshire.—A party of Green Sandpipers (*T. ochropus*) passed here in the middle of August last, on their autumnal migration. I saw one at Marfield Pond, a sheet of water of considerable extent much frequented by wild-fowl, on the 15th; another was seen by the river-side near Clifton Castle on the 19th; one was shot at a rapid stream on the Yore on the 21st, close to Masham; and on the 24th a second was shot on the edge of a small horse-pond, about a mile and a-half down the river. 1880 was the first year we noticed these birds in this locality, when one was feeding on a sandbank by the river side on August 15th. August 16th, 1883, I flushed one from almost exactly the same spot. None were seen during the two years 1881–1882. It is remarkable how nearly the dates of the three appearances of these birds fall upon the same day of the month, they being the 15th, 16th, and 15th respectively.—THOMAS CARTER (Burton House, Masham).

Manx Shearwater inland in Shropshire.—On Sept. 12th I received from my brother, the Rev. W. Bond, a fine adult Manx Shearwater, which had been picked up the previous day in a barley field at Aston-on-Clun, Shropshire. It is now in the hands of Mr. Burton, of Wardour Street, for preservation.—F. BOND (Staines).

Black Game in Pembrokeshire.—By a printer's error I am made to say, in my notes under this heading, with reference to the Blackcock (p. 382), "the many blackcock runs one sees there everywhere attest its presence." This should, of course, be "Blackcock Inns," alluding to the various inns of that name which occur generally throughout the whole of South Wales.—E. CAMBRIDGE PHILLIPS (Brecon).

REPTILES.

Lizards on the Rock of Filfolà.—The most interesting inhabitant of this limestone rock is the black variety of the common Green Lizard, *Podarcis muralis*, so common and universal in Malta. It has been remarked that they are tamer than their green relations on the mainland, but this is only natural, as human beings are comparatively unknown to them. Concerning this peculiar colour variety, Prof. Giglioli states that he has invariably found that *P. muralis* constantly presents dark varieties "on islets adjoining small islands," and quotes as examples islets off Ponza,

Ventolene, Vacca (Sardinia), Panaria (Lipari Is.), &c., the extreme cases being Saraglione off Capri and Filfola. Similar observations have been made in other parts of the world. The cause of this coloration has been assigned to the action of the sun on the pigment-cells of the skin, the lizards on islets being more exposed to the sun's heat than on larger tracts of land. These black Filfola lizards are, as a rule, larger than the type in Malta. I received several specimens; there was considerable variation in the arrangement of the scales on the belly, as also in the intensity of the bronze-black. They were all more or less marked with green scales, varying from emerald-green to a pale bright green. An excellent instrument for obtaining lizard specimens is a very small-bore walking-stick-gun, with No. 10 shot; it kills or disables them without mauling.—E. F. BECHER Capt. R.A.

FISHES.

Wreck-fish at Penzance.—On August 17th I obtained here a specimen of the Wreck-fish (*Polyprion*, Couch), one of the three fishes known as Stone Bass. It was found, as usual, near wreckage (in this case a wrecked barrel) afloat. I have nothing particular to record of it, except perhaps the fact that it proved exceedingly good from a culinary point of view.—THOMAS CORNISH (Penzance).

Ray's Bream at Penzance.—On Sept. 5th I received from Porthgwara (a fishing cove west of the Logan Rock) a small specimen of Ray's Bream, *Brama Raiti*. It was captured, as these fish usually are, in a dying or disabled state on the edge of the waves. It is a small specimen, weighing about twenty ounces, and is chiefly remarkable from my having made it the subject of experiments with an antiseptic powder exhibited in our little West Cornwall Fisheries Exhibition held here during the past fortnight. The fish was taken on Sept. 4th, was bathed in the prescribed solution of the antiseptic powder on the 5th, and was eaten by me on the 12th, when I found it in a perfectly fresh state.—THOMAS CORNISH (Penzance).

MOLLUSCA.

The proposed adoption of Trinomial Nomenclature.—Objection has been made to the trinomial system of nomenclature proposed by Dr. Coues, on the ground that it would be very liable to abuse, especially by amateurs, and certainly no better justification of this stricture could be found than the following extract from 'Science Gossip' for September:—"The early part of this week I had a very pretty banded *Helix nemoralis*, var. *hybrida*, var. *minor*, var. *sinistrorsum* (reversed), sent me from a village near Bristol." Readers of 'Science Gossip' will doubtless be grateful to the writer for the translation of *sinistrorsum*, which of course should be *sinistrorsa*; but surely the addition of "var. *x-fasciata*" is required to complete the description.—B. B. WOODWARD (British Museum).

